

[4910-13-U]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39 [65 FR 48368 8/8/2000]

[Docket No. 99-NM-227-AD; Amendment 39-11849; AD 2000-15-17]

RIN 2120-AA64

Airworthiness Directives; McDonnell Douglas Model DC-9-81 (MD-81), DC-9-82 (MD-82), DC-9-83 (MD-83), and DC-9-87 (MD-87); Model MD-88 Airplanes; and Model MD-90-30 Series Airplanes

AGENCY: Federal Aviation Administration, DOT.

ACTION: Final rule.

SUMMARY: This amendment adopts a new airworthiness directive (AD), applicable to certain McDonnell Douglas Model DC-9-81 (MD-81), DC-9-82 (MD-82), DC-9-83 (MD-83), and DC-9-87 (MD-87); Model MD-88 airplanes; and Model MD-90-30 series airplanes; that requires installation of a pipe support and clamps on the hydraulic lines in the aft fuselage; replacement of the hydraulic pipe assembly in the aft fuselage with a new pipe assembly; and installation of drain tube assemblies and diverter assemblies in the area of the auxiliary power unit (APU) inlet; as applicable. This amendment is prompted by reports of smoke and odor in the passenger cabin and cockpit due to hydraulic fluid leaking into the APU inlet, and subsequently, into the air conditioning system. The actions specified by this AD are intended to prevent such hydraulic fluid leakage due to fatigue vibration and cracking in the flared radius of a hydraulic pipe in the aft fuselage, which could result in smoke and odors in the passenger cabin or cockpit.

DATES: Effective September 12, 2000.

The incorporation by reference of certain publications listed in the regulations is approved by the Director of the Federal Register as of September 12, 2000.

ADDRESSES: The service information referenced in this AD may be obtained from Boeing Commercial Aircraft Group, Long Beach Division, 3855 Lakewood Boulevard, Long Beach, California 90846, Attention: Technical Publications Business Administration, Dept. C1-L51 (2-60). This information may be examined at the Federal Aviation Administration (FAA), Transport Airplane Directorate, Rules Docket, 1601 Lind Avenue, SW., Renton, Washington; or at the FAA, Transport Airplane Directorate, Los Angeles Aircraft Certification Office, 3960 Paramount Boulevard, Lakewood, California; or at the Office of the Federal Register, 800 North Capitol Street, NW., suite 700, Washington, DC.

FOR FURTHER INFORMATION CONTACT: Albert Lam, Aerospace Engineer, Systems and Equipment Branch, ANM-130L, FAA, Transport Airplane Directorate, Los Angeles Aircraft Certification Office, 3960 Paramount Boulevard, Lakewood, California 90712-4137; telephone (562) 627-5346; fax (562) 627-5210.

SUPPLEMENTARY INFORMATION: A proposal to amend part 39 of the Federal Aviation Regulations (14 CFR part 39) to include an airworthiness directive (AD) that is applicable to certain McDonnell Douglas Model DC-9-81 (MD-81), DC-9-82 (MD-82), DC-9-83 (MD-83), and DC-9-87 (MD-87); Model MD-88 airplanes; and Model MD-90-30 series airplanes; was published in the **Federal Register** on January 18, 2000 (65 FR 2555). That action proposed to require installation of a pipe support and clamps on the hydraulic lines in the aft fuselage; replacement of the hydraulic pipe assembly in the aft fuselage with a new pipe assembly; and installation of drain tube assemblies and diverter assemblies in the area of the auxiliary power unit (APU) inlet; as applicable.

Comments

Interested persons have been afforded an opportunity to participate in the making of this amendment. Due consideration has been given to the comments received.

Requests for Alternative Methods of Compliance (AMOC)

One commenter requests that operators be allowed to install NAS 1252-10H washers in lieu of the NAS1149D0363H washers specified in McDonnell Douglas Service Bulletin MD80-29-056, dated June 18, 1996 [which was referenced in paragraph (a) of the proposed AD as the appropriate source of service information for accomplishing the required installation]. The commenter states that NAS 1252-10H washers are manufactured from 7075-T6 aluminum alloy and are more wear resistant than NAS1149D0363H washers manufactured from 2024-T3 aluminum alloy.

The FAA partially concurs. The FAA acknowledges that 7075-T6 aluminum alloy material is more durable than 2024-T3 aluminum alloy material. However, the commenter did not provide any data, such as the size or thickness of a NAS 1252-10H washer, to substantiate that this alternative washer would provide an acceptable level of safety. However, under the provisions of paragraph (e) of the final rule, the FAA may consider requests for approval of an AMOC if sufficient data are submitted to substantiate that such a design change would provide an acceptable level of safety.

One commenter requests that, in lieu of replacing the hydraulic pipe assembly in the aft fuselage with a new pipe assembly having a greater wall thickness [required by paragraph (b) of the proposed AD], operators be allowed to manufacture and install this tube assembly with flares in order to minimize preload. The commenter states that the failure rate of the hydraulic pipe assembly is compounded due to a preload situation at the flanges. Flange failure will consequently occur more often when a pre-assembled tube is installed. The commenter also states that this configuration will improve the reliability of the tube assembly, which would reduce the possibility of smoke/odor in the cabin.

The FAA does not concur. The FAA has received no reports of failure of the new pipe assembly having a greater wall thickness. The FAA has determined that replacement of the hydraulic pipe assembly in the aft fuselage with a new pipe assembly having a greater wall thickness will adequately address the identified unsafe condition. In addition, the commenter did not provide any data to support its request. However, the FAA may consider requests for approval of an AMOC under the provisions of paragraph (e) of this AD if sufficient data are submitted to substantiate that such a design change would provide an acceptable level of safety.

One commenter requests that operators be allowed to install the drain tubes and diverter assemblies, as required by paragraph (c) of the proposed AD, using blind rivets rather than solid rivets. The commenter states that blind rivets provide a structurally sound installation and an equivalent level of safety as the solid rivets.

The FAA does not concur. The FAA finds that blind rivets in the tail area of airplanes are highly susceptible to vibration from the engine and APU, which, over time, could loosen the blind rivets. However, under the provisions of paragraph (e) of the final rule, the FAA may consider requests for approval of an AMOC if sufficient data are submitted to substantiate that such a design change would provide an acceptable level of safety.

Requests to Revise Certain Compliance Times

Four commenters request that the 18-month compliance time for accomplishing the installation of drain tube assemblies and diverter assemblies required by paragraph (c) of the proposed AD be extended. Each commenter suggested different times (i.e., 3, 4, and 5 years). Three of the commenters state that such an extension would allow the subject installation to be accomplished during a regularly scheduled heavy "C" check where trained personnel will be available, if necessary, and will allow time for procurement of additional parts. One commenter states that the airplane manufacturer is currently quoting a 10-month lead time for the availability of all parts needed for accomplishing the required installation.

One of the commenters also requests that the 18-month compliance time for accomplishing the replacement of the hydraulic pipe assembly required by paragraph (c) of the proposed AD be extended to 3 years. The commenter states that a 3-year compliance time would provide operators with more time to investigate the true cause of smoke/odor in the cabin.

The FAA concurs that the compliance time can be extended somewhat. In developing an appropriate compliance time for this AD action, the FAA considered not only the degree of urgency associated with addressing the subject unsafe condition, but the practical aspect of incorporating the required modification into affected operators' maintenance schedules in a timely manner. Based on the information supplied by the commenters, the FAA now recognizes that 24 months corresponds more closely to the interval representative of most of the affected operators' normal maintenance schedules for accomplishing the requirements of paragraph (c) of this AD.

The FAA has reviewed data submitted by the manufacturer regarding parts availability and finds that there is approximately a 10-month lead time for procuring certain parts. Therefore, the FAA has revised paragraph (c) of the final rule to reflect a compliance time of 36 months. The FAA does not consider that these extensions will adversely affect safety.

Requests That The Installation of Drain Tube and Diverter Assemblies Be Optional

Two commenters request that the requirements (i.e., installation of drain tube assemblies and diverter assemblies) of paragraph (c) of the proposed AD be optional. One commenter states that the installation of the drainage tubing does nothing to increase safety. Another commenter states that it is pursuing the installation of center diverters, and that it does not see the advantage of side diverters. The commenter also states that, based on data collected from cabin smoke/odor events, the occurrences caused by APU engine oil ingestion outnumber those caused by skydrol (hydraulic fluid) ingestion at a ratio of four to one (4:1). The side diverters appear to be focused mainly on the skydrol ingestion. The commenter further states that these instances are the exception rather than the rule and do not warrant the increase in cost and maintenance time.

The FAA does not concur. As discussed in the preamble of the NPRM, the FAA has received several reports of smoke and odor in the passenger cabin and cockpit due to hydraulic fluid leaking into the APU inlet, and subsequently, into the air conditioning system. The FAA is also aware of a similar event that resulted in an emergency evacuation of an airplane and consequent injury to several passengers. Further, the results of drain tests, conducted by the airplane manufacturer, indicate that installation of drain tubes and diverter assemblies prevent fluid from being ingested into the APU when hydraulic fluids leak into the bilge area of the tailcone. The FAA acknowledges that the required installation is mainly focused on preventing skydrol ingestion into the APU inlet and does not prevent any fluid from leaking within the APU or environmental control system of the airplane. However, the FAA has identified an unsafe condition that must be corrected. If any other unsafe condition is identified subsequent to the release of this AD, the FAA may consider further rulemaking. Therefore, in light of these findings, the FAA finds the installation of drain tube assemblies and diverter assemblies in the area of the APU inlet required by paragraph (c) of this AD is warranted.

Request to Revise A Certain Work Hour Estimate

One commenter notes that the FAA estimates 14 work hours per airplane for accomplishing the proposed installation of drain tube assemblies and diverter assemblies, whereas the referenced service bulletins estimate 44.8 work hours per airplane. However, the commenter states that it would take 60 work hours per airplane to accomplish the proposed installation.

From this comment, the FAA infers that the commenter is requesting that the work hour estimate for accomplishing the proposed installation be revised from 14 work hours per airplane to 60 work hours per airplane. The FAA does not concur. The cost impact information, below, describes only the “direct” costs of the specific actions required by this AD. The number of work hours necessary to accomplish the required installation of drain tube assemblies and diverter assemblies, specified as 14 in the cost impact information, below, was provided to the FAA by the manufacturer based on the best data available to date. This number represents the time necessary to perform only the actions actually required by this AD. The FAA recognizes that, in accomplishing the requirements of any AD, operators may incur “incidental” costs in addition to the “direct” costs. The cost analysis in AD rulemaking actions, however, typically does not include incidental costs, such as the time required to gain access and close up; planning time; or time necessitated by other administrative actions. Because incidental costs may vary significantly from operator to operator, they are almost impossible to calculate.

Explanation of Change to Cost Impact

The FAA’s estimate of the number of affected airplanes of U.S. registry (i.e., 634 airplanes) in the Cost Impact section of the proposed AD is incorrect. The correct figure is 656. Also, the FAA inadvertently omitted some of the affected airplanes [i.e., 634 Model DC-9-81 (MD-81), DC-9-82 (MD-82), DC-9-83 (MD-83), and DC-9-87 (MD-87) series airplanes; Model MD-88 airplanes] from the cost figures for accomplishing the required installation of the drain tube assemblies and diverter assemblies. Therefore, the FAA has revised the final rule accordingly.

Conclusion

After careful review of the available data, including the comments noted above, the FAA has determined that air safety and the public interest require the adoption of the rule with the changes previously described. The FAA has determined that these changes will neither increase the economic burden on any operator nor increase the scope of the AD.

Cost Impact

There are approximately 1,126 Model DC-9-81 (MD-81), DC-9-82 (MD-82), DC-9-83 (MD-83), and DC-9-87 (MD-87); Model MD-88 airplanes; and Model MD-90-30 series airplanes of the affected design in the worldwide fleet. The FAA estimates that 656 airplanes of U.S. registry will be affected by this AD.

It will take approximately 2 work hours per airplane [for 512 Model DC-9-81 (MD-81), DC-9-82 (MD-82), DC-9-83 (MD-83), and DC-9-87 (MD-87) series airplanes] to accomplish the required installation of the pipe support and clamps, at an average labor rate of \$60 per work hour. Required parts will cost approximately \$226 per airplane. Based on these figures, the cost impact of this installation required by AD on U.S. operators is estimated to be \$177,152, or \$346 per airplane.

It will take approximately 2 work hours per airplane [for 634 Model DC-9-81 (MD-81), DC-9-82 (MD-82), DC-9-83 (MD-83), and DC-9-87 (MD-87) series airplanes, and Model MD-88 airplanes] to accomplish the required replacement of the hydraulic pipe assembly, at an average labor rate of \$60 per work hour. Required parts will cost approximately \$520 per airplane. Based on these figures, the cost impact of this replacement required by this AD on U.S. operators is estimated to be \$405,760, or \$640 per airplane.

It will take approximately 14 work hours per airplane [for 656 Model DC-9-81 (MD-81), DC-9-82 (MD-82), DC-9-83 (MD-83), and DC-9-87 (MD-87) series airplanes; Model MD-88 airplanes; and Model MD-90-30 series airplanes] to accomplish the required installation of drain tube assemblies and diverter assemblies, at an average labor rate of \$60 per work hour. Required parts will cost approximately \$4,503 per airplane. Based on these figures, the cost impact of this installation required by this AD on U.S. operators is estimated to be \$3,505,008, or \$5,343 per airplane.

The cost impact figures discussed above are based on assumptions that no operator has yet accomplished any of the requirements of this AD action, and that no operator would accomplish those actions in the future if this AD were not adopted.

Regulatory Impact

The regulations adopted herein will not have a substantial direct effect on the States, on the relationship between the national Government and the States, or on the distribution of power and responsibilities among the various levels of government. Therefore, it is determined that this final rule does not have federalism implications under Executive Order 13132.

For the reasons discussed above, I certify that this action (1) is not a “significant regulatory action” under Executive Order 12866; (2) is not a “significant rule” under DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979); and (3) will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act. A final evaluation has been prepared for this action and it is contained in the Rules Docket. A copy of it may be obtained from the Rules Docket at the location provided under the caption “ADDRESSES.”

List of Subjects in 14 CFR Part 39

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

Adoption of the Amendment

Accordingly, pursuant to the authority delegated to me by the Administrator, the Federal Aviation Administration amends part 39 of the Federal Aviation Regulations (14 CFR part 39) as follows:

PART 39 - AIRWORTHINESS DIRECTIVES

1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

§ 39.13 [Amended]

2. Section 39.13 is amended by adding the following new airworthiness directive:

AIRWORTHINESS DIRECTIVE

REGULATORY SUPPORT DIVISION
P.O. BOX 26460
OKLAHOMA CITY, OKLAHOMA 73125-0460



U.S. Department
of Transportation
**Federal Aviation
Administration**

AD's are posted on the internet at <http://av-info.faa.gov>

The following Airworthiness Directive issued by the Federal Aviation Administration in accordance with the provisions of Title 14 of the Code of Federal Regulations (14 CFR) part 39, applies to an aircraft model of which our records indicate you may be the registered owner. Airworthiness Directives affect aviation safety and are regulations which require immediate attention. You are cautioned that no person may operate an aircraft to which an Airworthiness Directive applies, except in accordance with the requirements of the Airworthiness Directive (reference 14 CFR part 39, subpart 39.3).

2000-15-17 MCDONNELL DOUGLAS: Amendment 39-11849. Docket 99-NM-227-AD.

Applicability: Models and series of airplanes as listed in the applicable McDonnell Douglas service bulletin(s) specified in Table 1 of this AD, certificated in any category.

Model of Airplane

DC-9-81 (MD-81),
DC-9-82 (MD-82),
DC-9-83 (MD-83), and
DC-9-87 (MD-87) series airplanes.
MD-88 airplanes

MD-90-30 series airplanes

TABLE 1

McDonnell Douglas Service Bulletin(s)

MD80-29-056, dated June 18, 1996;
MD80-29-062, Revision 01, dated August 3, 1999; and
MD80-53-286, dated September 3, 1999.

MD80-29-062, Revision 01, dated August 3, 1999; and
MD80-53-286, dated September 3, 1999.
MD90-53-018, dated September 3, 1999.

Note 1: This AD applies to each airplane identified in the preceding applicability provision, regardless of whether it has been modified, altered, or repaired in the area subject to the requirements of this AD. For airplanes that have been modified, altered, or repaired so that the performance of the requirements of this AD is affected, the owner/operator must request approval for an alternative method of compliance in accordance with paragraph (e) of this AD. The request should include an assessment of the effect of the modification, alteration, or repair on the unsafe condition addressed by this AD; and, if the unsafe condition has not been eliminated, the request should include specific proposed actions to address it.

Compliance: Required as indicated, unless accomplished previously.

To prevent hydraulic fluid leakage into the auxiliary power unit (APU) inlet due to fatigue vibration and cracking in the flared radius of a hydraulic pipe in the aft fuselage, which could result in smoke and odors in the passenger cabin or cockpit; accomplish the following:

Installation of a Pipe Support and Clamps

(a) For Model DC-9-81 (MD-81), DC-9-82 (MD-82), DC-9-83 (MD-83), and DC-9-87 (MD-87) series airplanes, as listed in McDonnell Douglas Service Bulletin MD80-29-056, dated June 18, 1996: Within 18 months after the effective date of this AD, install a pipe support and clamps on the hydraulic lines in the aft fuselage in accordance with the service bulletin.

Replacement of the Hydraulic Pipe Assembly

(b) For Model DC-9-81 (MD-81), DC-9-82 (MD-82), DC-9-83 (MD-83), and DC-9-87 (MD-87) series airplanes, and Model MD-88 airplanes, as listed McDonnell Douglas Service Bulletin MD80-29-062, Revision 01, dated August 3, 1999: Within 18 months after the effective date of this AD, replace the hydraulic pipe assembly in the aft fuselage with a new pipe assembly having a greater wall thickness, in accordance with the service bulletin. Except for Model MD-88 airplanes that have been modified in accordance with McDonnell Douglas MD-80 Service Bulletin 29-54, dated February 2, 1993, or Revision 2, dated December 17, 1993, the requirements of this paragraph must be accomplished concurrently with the requirements of paragraph (a) of this AD.

Installation of Drain Tube Assemblies and Diverter Assemblies

(c) For Model DC-9-81 (MD-81), DC-9-82 (MD-82), DC-9-83 (MD-83), and DC-9-87 (MD-87) series airplanes, as listed in McDonnell Douglas Service Bulletin MD80-53-286, dated September 3, 1999; and Model MD-90-30 series airplanes, as listed in McDonnell Douglas Service Bulletin MD90-53-018, dated September 3, 1999: Within 36 months after the effective date of this AD, install drain tube assemblies and diverter assemblies in the area of the APU inlet, in accordance with the applicable service bulletin.

Spares

(d) As of the effective date of this AD, no person shall install a hydraulic pipe assembly, part number 7936907-603, on any airplane.

Alternative Methods of Compliance

(e) An alternative method of compliance or adjustment of the compliance time that provides an acceptable level of safety may be used if approved by the Manager, Los Angeles Aircraft Certification Office (ACO), FAA, Transport Airplane Directorate. Operators shall submit their requests through an appropriate FAA Principal Maintenance Inspector, who may add comments and then send it to the Manager, Los Angeles ACO.

Note 2: Information concerning the existence of approved alternative methods of compliance with this AD, if any, may be obtained from the Los Angeles ACO.

Special Flight Permits

(f) Special flight permits may be issued in accordance with sections 21.197 and 21.199 of the Federal Aviation Regulations (14 CFR 21.197 and 21.199) to operate the airplane to a location where the requirements of this AD can be accomplished.

Incorporation by Reference

(g) The actions shall be done in accordance with McDonnell Douglas Service Bulletin MD80-29-056, dated June 18, 1996; McDonnell Douglas Service Bulletin MD80-29-062, Revision 01, dated August 3, 1999; McDonnell Douglas Service Bulletin MD80-53-286, dated September 3, 1999; or McDonnell Douglas Service Bulletin MD90-53-018, dated September 3, 1999; as applicable. This incorporation by reference was approved by the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. Copies may be obtained from Boeing Commercial Aircraft Group, Long Beach Division, 3855 Lakewood Boulevard, Long Beach, California 90846, Attention: Technical Publications Business Administration, Dept. C1-L51 (2-60). Copies may be inspected at the FAA, Transport Airplane Directorate, 1601 Lind Avenue, SW., Renton, Washington; or at the FAA, Transport Airplane Directorate, Los Angeles Aircraft Certification Office, 3960 Paramount Boulevard, Lakewood, California; or at the Office of the Federal Register, 800 North Capitol Street, NW., suite 700, Washington, DC.

Effective Date

(h) This amendment becomes effective on September 12, 2000.

FOR FURTHER INFORMATION CONTACT: Albert Lam, Aerospace Engineer, Systems and Equipment Branch, ANM-130L, FAA, Transport Airplane Directorate, Los Angeles Aircraft Certification Office, 3960 Paramount Boulevard, Lakewood, California 90712-4137; telephone (562) 627-5346; fax (562) 627-5210.

Issued in Renton, Washington, on July 31, 2000.

Donald L. Riggin, Acting Manager, Transport Airplane Directorate, Aircraft Certification Service.